



DAIKOWM Ti 2



TITANIUM ALLOYS
Gr. 2

DESCRIPTION

Titanium alloy solid wire gr 2

Universal wire rod for the welding of titanium gr. 1, 2, 3 and 4. It is commonly referred to as commercially pure titanium with the level of impurities and mechanical properties increasing slightly from ERTi-1 to ERTi-4. This is the most widely used titanium consumable for industrial applications because of its good balance of strength, formability, and weldability. Often used in seawater and brackish water heat exchangers, chemical process heat exchangers, pressure vessels and piping systems, pulp bleaching systems, air pollution control scrubbers, and aerospace industry.

SPECIFICATIONS

AWS A5.16	ERTi-2	Shielding	I1, I3
Positions	PA, PB, PC, PD, PE, PF	Current	DC+
Packaging Type	Drums, B300, D200 and D100 spools.		

ASME QUALIFICATIONS

F-No (QW432)	51
A-No (QW442)	-

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
C	0.02	Tensile strength R_m MPa	-	460
N	0.01	Yield strength $R_{p0.2}$ MPa	0	390
P	0.007	Elongation A ($L_0=5d_0$) %	0	20
Fe	0.1	Impact Charpy ISO-V	-	-
		Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	1.0 mm	1.2 mm
Ampere	160A - 280A	240A - 300A
Voltage	18V - 27V	31V - 35V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.





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DESCRIPTION

APPLICATION

This filler material is intended for GTAW and GMAW welding of commercially pure titanium alloys, often used in contexts requiring high performance resistance to high temperatures and chemical reagents. Among the four available grades of pure titanium filler metals, C.P. grade 2 (ERTi-2) is notable for its widespread use, excellently balancing mechanical strength, formability, and weldability. The aerospace industry represents the main field of application, favoring it for its tensile strength and excellent weight-strength ratio. Additional uses include cryogenic and petrochemical fields, where it is employed in heat exchangers for chemical processes, pressure vessels, piping systems, pulp bleaching equipment, and electrochemical and chemical storage tanks. Compared to other types of commercially pure titanium, this grade is slightly less strong than grade 3 but more robust than grade 1, ensuring excellent corrosion resistance. Grade 2 offers a formidable balance between moderate mechanical strength and adequate ductility, and it is also non-magnetic.

ALLOY TYPE

Gr. 2 titanium, commercially pure.

MICROSTRUCTURE

Pure alpha alloys (compact hexagonal lattice-HCP).

MATERIALS

Suitable for welding Titanium grade 1, 2, 3 and 4.

EN W.Nr.: 3.7025, 3.7035, 3.7055, 3.7065

ASTM: Ti-Gr 1, Ti-Gr 2, Ti-Gr 3, Ti-Gr 4

UNS: R504007, R50400, R50550, R50700

WELDING & PWHT

Titanium, being a reactive metal, is sensitive to embrittlement induced by oxygen, nitrogen, and hydrogen at high temperatures. Therefore, it is essential to protect it from atmospheric contamination by shielding it with inert gases during welding. In the arc welding process, it is crucial to keep titanium protected from the surrounding atmosphere until it cools below about 430°C. Before welding, the metal must be entirely oxide-free and chemically clean, as contaminants like oxides, water, grease, or dirt can lead to embrittlement. Consequently, titanium welding rods must be chemically cleaned and free from heavy oxides, absorbed moisture, grease, and dirt. Cleaning between passes is not necessary if the weld bead maintains a shiny, silver-like appearance. A shift in the weld color towards yellow or blue can be eliminated with a clean stainless steel wire brush. Contaminated weld beads, indicated by a dull dark blue, gray, or white color, must be entirely removed by grinding. The joint must be carefully prepared and cleaned before rewelding.

